Contents

Foreword vii

Elmar Zeitler: the Chicago years
M. Isaacson 1

Configured detectors for STEM imaging of thin specimens
J.M. Cowley 4

Annular dark-field imaging: resolution and thickness effects
S. Hillyard, R.F. Loane and J. Silcox 14

Development and applications of a 300 keV ultrahigh-vacuum high-resolution electron microscope
D.J. Smith, M. Gajdardziska-Josifovska, P. Lu, M.R. McCartney, J. Podbrdsky, P.R. Swann and J.S. Jones 26

Low-temperature straining stage for in situ studies of thermoelastic martensitic transformations in a 200 kV electron microscope
J. Stoiber, B. Guisolan and R. Gotthardt 37

Adaptive Fourier-filtering technique for quantitative evaluation of high-resolution electron micrographs of interfaces
G. Möbus, G. Necker and M. Rühle 46

Ultimate resolution and information in electron microscopy. II. The information limit of transmission electron microscopes
A.F. de Jong and D. Van Dyck 66

Resolution and optimum conditions for dark-field STEM and CTEM imaging
M. Hammel and H. Rose 81

Computer simulations of electron holographic contour maps of superconducting flux lines. II. The case of tilted specimens
A. Migliori, G. Pozzi and A. Tonomura 87

Applications of slow-scan CCD cameras in transmission electron microscopy
O.L. Krivanek and P.E. Mooney 95

Towards automatic electron tomography. II. Implementation of autofocus and low-dose procedures
K. Dierksen, D. Typke, R. Hegerl and W. Baumeister 109

Electron diffraction effects of conical, helically wound, graphite whiskers
W. Luyten, T. Krekels, S. Amelinckx, G. Van Tendeloo, D. Van Dyck and J. Van Landuyt 123

Phase extension in electron crystallography using the maximum-entropy method and its application to two-dimensional purple membrane data from *Halobacterium halobium*
C.J. Gilmore, K. Shankland and J.R. Fryer 132

ELD – a computer program system for extracting intensities from electron diffraction patterns
X. Zou, Y. Sukharev and S. Hovmöller 147

Structure factor determination in non-centrosymmetric crystals by a two-dimensional CBED-based multi-parameter refinement method
R. Høier, L.N. Bakken, K. Marthinsen and R. Holmestad 159

Simple considerations on microanalysis using electron beams
M. Isaacson 171

Iterative reduction of gain variations in parallel electron energy loss spectrometry
P. Schattschneider and P. Jonas 179

EELS microanalysis of the elements Ca to Cu using M_{23} edges
F. Hofer and P. Wilhelm 189

Determination of coordinations and coordination-specific site occupancies by electron energy-loss spectroscopy: an investigation of boron–oxygen compounds
H. Sauer, R. Brydson, P.N. Rowley, W. Engel and J.M. Thomas 198

Computation and measurement of characteristic energy-loss large-angle convergent-beam patterns of molybdenum selenide
A. Weickenmeier, E. Quandt, H. Kohl, H. Rose and H. Niedrig 210

On the quantitative EDS analysis of low carbon concentrations in analytical TEM
W. Wunderlich, A.H. Foitzik and A.H. Heuer 220

Measurement of low calcium concentrations in cryosectioned cells by parallel-EELS mapping
R.D. Leapman, J.A. Hunt, R.A. Buchanan and S.B. Andrews 225

Concentration evaluation of chromatin in unstained resin-embedded sections by means of low-dose ratio-contrast imaging in STEM
B. Bohrmann, M. Haider and E. Kellenberger 235

Crystallographic HREM studies of small CdTe crystallites
R. Hillebrand, H. Hofmeister, K. Scheerschmidt and J. Heydenreich 252

Observation of atomic surface potential by electron microscopy
T. Tanji, K. Urata, K. Ishizuka, Q. Ru and A. Tonomura 259

H. Heinrich, G. Kostorz, B. Heeb, R. Müller, T. Schweizer and L.J. Gauckler 265

Direct measurement of local lattice distortions in strained layer structures by HREM
R. Bierwolf, M. Hohenstein, F. Phillipp, O. Brandt, G.E. Crook and K. Ploog 273

Electron microscopy of advanced magnets
G. Thomas 286

Thickness dependence of structure in thin films of low-temperature silver selenide
J.R. Günter and P. Keusch 293

Epitaxial growth of tetraphenylmetalporphyrin films vapor-deposited on alkali halides
S. Hayashi, H. Yanagi, Y. Ueda, Y. Fujiyoshi and M. Ashida 308

UV-photoemission electron microscopy investigation of pattern formation during oxidation of CO on a platinum (210) surface
M. Ehsasi, A. Karpowicz, M. Berdau, W. Engel, K. Christmann and J.H. Block 318

Chemically sensitive imaging of $(YBa_2Cu_3O_7)_m/(PrBa_2Cu_3O_7)_n$ superlattices by means of high-resolution electron microscopy
C.L. Jia, A. Thust, G. Jakob and K. Urban 330

Phosphorus vacancies and adatoms on GaP(110) surfaces studied by scanning tunneling microscopy
Ph. Ebert and K. Urban 344

Strain contrast at crack tips for in-situ transmission electron microscopy straining experiments
M. De Graef and D.R. Clarke 354

Use, applications and value of stereo-EBIC imaging
U. Valdrè, A. Bergonzoni and M. Merli 366

New method for the study of airborne particles based on tree-resin trapping and analytical electron microscopy
G. Valdrè and K. Korlevic 382

Flopping polypeptide chains and Suleika's subtle imperfections: analysis of variations in the electron micrograph of a purple membrane crystal
J. Frank, W. Chiu and R. Henderson 387

Cryo-electron microscopy of the surface protein of *Sulfolobus shibatae*
G. Lembcke, W. Baumeister, E. Beckmann and F. Zemlin 397

Prospects for using an IVEM with a FEG for imaging macromolecules towards atomic resolution
Z.H. Zhou and W. Chiu 407

Size of the export channel in the flagellar filament of *Salmonella typhimurium*
T. Ruiz, N.R. Francis, D.G. Morgan and D.J. DeRosier 417

Books for the Editor
P.W. Hawkes 436

"Not for publication"
J. Reiffel 443

Author index 447

Subject index 450